

## **APPARATUS AND METHOD FOR DETECTING AND LOCATING RARE CELLS**

### **ABSTRACT OF THE DISCLOSURE**

[0121] In accordance with one aspect of the present application, an imager and method for detecting and locating rare cells in a sample is disclosed. An imager stage supports the sample. A fiber optic bundle has a proximate bundle end of first fiber ends arranged to define an input aperture viewing the sample on the translation stage. The fiber optic bundle further has a distal bundle end of second fiber ends arranged to define an output aperture shaped differently from the input aperture and disposed away from the imager stage. A scanning radiation source is arranged in fixed relative position to the input aperture. The scanning radiation source scans a radiation beam on the sample within a viewing area of the input aperture. The radiation beam interacts with the sample to produce a light signal that is reflected, scattered, transmitted, re-emitted, or otherwise collected and received by the input aperture and transmitted via the fiber optic bundle to the output aperture. The scanning radiation source rasters the radiation beam over a selected area of the sample. A photodetector is arranged to detect the light signal at the distal bundle end, and a processor processes the detected light signals.